Mellanox FlexBoot for ConnectX-4

Release Notes

Rev 3.4.650

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Mellanox Technologies
350 Oakmead Parkway Suite 100
Sunnyvale, CA 94085
U.S.A.
www.mellanox.com
Tel: (408) 970-3400
Fax: (408) 970-3403

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Document Revision History

Table 1: Document Revision History

Revision	Date	Description
3.4.650	September, 2015	Initial release of this FlexBoot version

1 Overview

These are the release notes for "Mellanox FlexBoot", the software for Boot over Mellanox Technologies adapter devices supporting VPI. FlexBoot enables booting kernels or operating systems (OS) from remote servers in compliance with the PXE specification.

This package is based on the open source project iPXE available at http://www.ipxe.org.

1.1 Supported Adapter Cards and Firmware

Table 2: Supported Adapter Cards and Firmware

Adapter Cards	Firmware Version
Connect-IB	10.12.0780
ConnectX-4 Lx	14.12.0780
ConnectX-4	12.12.0780

1.2 Supported Tools (MFT)

Table 3: Supported Tools (MFT)

Tools	Version
MFT (Mellanox Firmware Tools)	4.1.0

1.3 Supported Operating Systems

Table 4: Operating Systems

OSs	Version
ESXi	5.5
RHEL	6.4
RHEL	6.6
RHEL	7.0
RHEL	7.1
SLES	11.3
SLES	11.4 - Ethernet only
SLES	12
Ubuntu	14.04 - Ethernet only
Ubuntu	15.4
Windows Server	2012
Windows Server	2012R2

1.4 Tested Platforms

Table 5: Tested Platforms

Server Vendor & Model	BIOS Manuf. & Version
DELL C6220	Dell Inc. 2.5.3
DELL C6220 II	Dell Inc. 2.4.2
DELL C7220N	2.1.11
DELL M630	DELL 1.0.3
DELL R720	DELL 2.5.2
DELL R730	DELL 1.3.6
DELL Stryper	3A06
HP BL460c Gen9	I36 v1.50
HP DL160 Gen9	U20
HP DL360 Gen9	P89 v1.50
HP DL380 Gen9	P89 v1.50
HP Moonshot Anders M710	HP systems – H03
HP ProLiant SE2140s Gen8 (MiniPooch)	P87
HP ProLiant XL230b Gen9	U12
HP SE2140s Gen8	P87
HP SE2160w Gen9	U16
HP SL230s Gen8	P75
HP XL230a Gen9	U13 v1.40
HP XL230b Gen9	U12 v1.30
IBM Flex system x220	KSE142AUS-1.50
IBM Flex system x240	B2E142AUS-1.50
IBM System x3650 M4	VVE142EUS-1.80
IBM System x3850 X6 M4 (WillyCat)	A8E11AUS-1.00
Quanta T6MG	American Megatrends Inc. C1031.BS.3A09
Quanta Winterfell	American Megatrends Inc. F03_3B07
Supermicro X9DRW	American Megatrends Inc. 3.0c
Wiwynn WCS	American Megatrends Inc. C1032.BS.1C03.GN1
ZT	American Megatrends Inc. 2.59

2 Changes and New Features in Rev 3.4.650

Table 6: Changes and Fixes in Rev 3.4.560

Category	Description
FlexBoot Code Size	Added support for .mrom images larger than 128kB
Adapter Cards	Added support for ConnectX-4 and ConnectX-4 Lx
Upstream sync	Synced the source with iPXE (upstream sync)
BIOS Compatibility	Moved to flat real mode when calling INT 1a,b101 to avoid BIOSes issues
Spanning Tree Protocol	Added support for detecting Spanning Tree Protocol non-forwarding ports (RSTP/MSTP)

3 Known Issues

The following is a list of general limitations and known issues of the various components of this FlexBoot release.

Table 7: Known Issues

Category	Description	Workaround
BIOS	Several BIOS vendors have limited boot-vector space and may not display FlexBoot in their boot menu	Disable the embedded NIC boot agent in BIOS
BIOS	In several BIOS, the server might hang during FlexBoot booting due to wrong configuration of the PMM	N/A
Large Receive Offload (LRO)	Large Receive Offload (LRO) and iSCSI may not interoperate due to a bug in current Linux kernel distributions.	Disable LRO in the IPoIB module when using iSCSI. See the Mellanox FlexBoot user's manual for details under the Diskless Machines chapter (InfiniBand Ports).
iSCSI over IB	iSCSI over IB is not tested	N/A
iSCSI over DCB	iSCSI over DCB is not supported	N/A
MTU	Flexboot supports only 2K MTU	N/A
BIOS Compatibility	Only EBX,ESI,DS,ES registers can be saved in Boot Entry	N/A
Protocols	SLAM,FTP,HTTPS and SRP are currently not supported	N/A
FCoE, BCV	FCoE, BCV are not supported	N/A
Boot over VLAN	Boot over VLAN with IB port is currently not supported	N/A
FlexBoot Boot Menu	Boot menu is displayed as READ ONLY if the HCA card does not support flash configuration	N/A
PXE Boot after iSCSI Boot	PXE boot after iSCSI boot with static configuration is currently not supported	N/A
iSCSI Boot	Boot retries is currently not functional when booting from iSCSI	N/A
Blink LEDs	Blink LEDs are currently not supported.	N/A
iSCSI Connection	FlexBoot supports only a single active iSCSI connection. Thus, when iSCSI-boot via Port 1 succeeds to connect but fails to boot, it will fail to connect via Port 2.	N/A
FlexBoot Boot Menu	FlexBoot Boot Menu will not be visible in serial output	N/A

Category	Description	Workaround
FlexBoot Boot Menu	FlexBoot Boot Menu is not supported in Connect-IB	N/A
FlexBoot Boot Menu	FlexBoot Boot Menu will not be shown in ConnectX-4 and ConnectX-4 Lx if the physical port is IB	N/A
Link Speed	56Gb/s is currently not supported	N/A
Boot Loaders	Some faulty boot loaders do not close the underlying UNDI device which may result in unexpected behavior and possible system crash after the OS starts to load	N/A
BIOS	If a client returned control to the BIOS after a successful connection to an iSCSI target (but did not boot from it), then, unexpected behavior may occur.	Follow the instructions described in the UM for the proper iSCSI boot/install
IPv6	IPv6 is currently not supported	
Spanning Tree Protocol (STP)	Occasionally, using the Spanning Tree Protocol (STP) in the switches may cause packet drops and boot failure in the system.	Enable the "edgemode" if disabled on the switch, or use either portfast or edgemode functionality on the switch ports connected to the NICs.
SR-IOV	Setting the number of Virtual Functions higher than the machine's memory capability may cause memory issues and system instability	N/A
PXE Boot	In some cases, PXE boot will not work if the client was given only the filename without next-server (siaddr)	N/A
BIOS	FlexBoot may not work as expected with systems that run with "large bar" enabled (Above 4G Decoding) over Connect-IB or ConnectX-4 HCAs.	N/A
PXE Boot	In ConnectX-4, the PXE boot time measurement over TFTP is 5:20 min for image size of 1GB, and iSCSI boot time measurement is 8 seconds for image size of 25 MB	N/A
Chain-loading gPXE	Chain-loading gPXE stack may result in undesirable behavior	N/A